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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/689,130 | 10/20/2003 | Erik J. Shahoian | IMM151 | 3894 |

34300 7590 11/29/2006
PATENT DEPARTMENT (51851)
KILPATRICK STOCKTON LLP
1001 WEST FOURTH STREET
WINSTON-SALEM, NC 27101

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| EXAMINER |
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HOLTON, STEVEN E

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| ART UNIT | PAPER NUMBER |
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2629

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/689,130

Applicant(s)

SHAHIOIAN ET AL.

Examiner

Steven E. Holton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 9/14/2006. Claims 1-19 are currently pending in the application. An action follows below:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shahoian et al. (USPgPub: 2002/0033795), hereinafter Shahoian in view of Rosenberg et al. (USPN: 6128006), hereinafter Rosenberg.

Regarding claims 1, 14, and 17 which are a device, associated method, and computer program associated with the method, Shahoian discloses a touch-sensitive input device (Fig. 1, element 16) configured to move in X and Y directions. Shahoian further discloses an actuator (Fig. 4, element 88) to provide haptic feedback to the touch-sensitive input device. However, Shahoian does not expressly disclose the actuator is disposed to produce a rotational force on the touch-sensitive input device.

Rosenberg discloses a wheel input device with rotational haptic feedback. Although, the mouse wheel is not a touch-sensitive device in the manner of a touchpad

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or similar, the haptic feedback is provided in response to a rotation of the mouse wheel, not a touch of the mouse wheel.

At the time of invention it would have been obvious to one skilled in the art to modify the teachings of Shahoian with the teachings of Rosenberg to produce a touchpad with rotational haptic feedback. The teachings of both references utilize haptic feedback as an opposing force to movement of an input device. It would have been obvious to one skilled in the art that a touchpad able to move in X and Y directions could also be configured to move in a rotational manner by providing a pivot point for the touchpad. Further, the actuator of Shahoian is a rotary actuator (Fig. 10) and that the linear feedback is provided by converting the rotary force into linear force through a linkage. It would have been obvious to one skilled in the art that by providing a different type of linkage, such as a direct or fixed linkage, that the rotary direction of the actuator would provide rotational feedback to the input device rather than linear feedback. The motivation for combining to the two references would be to provide a different type of haptic feedback to the touch-sensitive input device based on the expected inputs made to the input device.

Regarding claim 2, Shahoian discloses the input device as a touch-sensitive input device (Fig. 1, element 16).

Regarding claim 3, the shape of the touchpad, either as rectangular, circular, or some arbitrary shape would be a matter of design choice for one skilled in the art.

Regarding claims 4, 15 and 18, Rosenberg discloses generating rotational force within a limited range of motion (col. 21, lines 33-37). The Examiner notes that the hard stop force would produce a limited range of motion for the rotational force.

Regarding claims 5 and 6, Shahoian discloses using an actuator with a magnetic core and further names the actuator type as an "E-core" actuator (Figs. 15a and 15b; paragraph 159).

Regarding claim 7, Rosenberg discloses the use of a motor with belt drive to provide rotational haptic feedback (Fig. 7, elements 112 and 138 are actuator and belt; col. 15, line 64 – col. 16, line 20).

Regarding claim 8, Shahoian discloses providing stops to limit the movement of the input device (Fig. 16a, element 404; paragraph 169).

Regarding claim 9, Shahoian discloses an actuator using an eccentric rotation mass to provide haptic feedback (paragraph 92, lines 4-6). The Examiner notes that if the actuator described in claim 9 is providing "a rotational force on the touch-sensitive input device" as recited in claim 1, then the teachings of Shahoian would be read on the first claim directly as the actuator to provide a rotational force are used to provide a vibration as discussed in the touch input system of Shahoian and this vibration in the claims is regarded as a rotational force on the touchpad.

Regarding claim 10, Regarding claim 10, Shahoian discloses providing a flexure driven actuator with motor (paragraph 91).

Regarding claim 11, the Examiner states that the use of a flexure of brass would be a design choice for one skilled in the art. The flexure would be made of a suitable

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material to provide the necessary motion, strength, resiliency, or other properties needed to operate the device. The type of material chosen would be a design choice option.

Regarding claim 12, Shahoain discloses having the actuator is grounded to the housing (Fig. 9, element 278, paragraph 123).

Regarding claim 13, Shahoain discloses a processor to receive output signals and generate signals to produce the feedback forces (Fig. 4, elements 110 and 116). Rosenberg also discloses a processor to receive outputs and produce actuator inputs (col. 8, lines 15-27).

Regarding claims 16 and 19, Rosenberg discloses generating pop sensation to the touch-sensitive input device (col. 18, lines 60 – 64).

Response to Arguments

3. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

The argument here is to restate the note provided above with claim 9. If the actuator described in claim 9 is the same actuator from claim 1 that is providing "a rotational force on the touch-sensitive input device" it can be assumed that an rotary actuator with an eccentric rotating mass that is used to impart a vibration force to the touchpad is providing a 'rotational force' on the touch-sensitive device. Shahoian describes providing a vibration force to the touchpad by an actuator attached to a rotating mass (paragraphs 47 and 92). If a system with the eccentric mass to provide

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vibration is considered to be providing a 'rotational force' as the claim language of claims 1 and 9 appears to provide, that would mean that Shahoian is fully teaching a touch-sensitive input device coupled to an actuator that produces rotational force to the input device. If the eccentric mass actuator is not providing a rotational force, then claim 9 is not providing further limitation to the actuator of claim 1, but providing a second actuator to provide different feedback to the input device.

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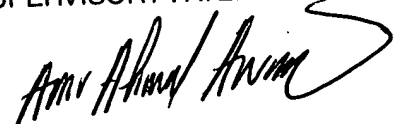
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571) 272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Steven E. Holton
Division 2629
November 22, 2006

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Amr A. Awad', with a large, sweeping flourish extending to the right.